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(54) **Intruder alarm device**

(57) The alarm device is portable and comprises a movement detector, such as an infra-red detector 5 housed in a forwardly-extending portion 2, and a DC power source such as a battery, an audible alarm buzzer and a switch 4 to arm the device, housed in a slender back portion 1. The device is adapted to rest on top of a hanging picture frame or may be inverted and used as a stand for a smaller framed picture, for example on a mantelpiece, Fig 4 (not shown).

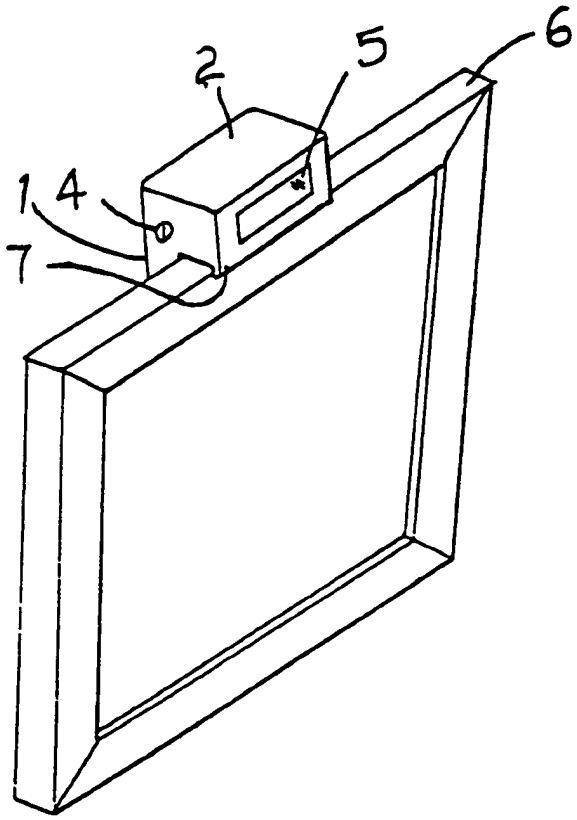

FIG 3

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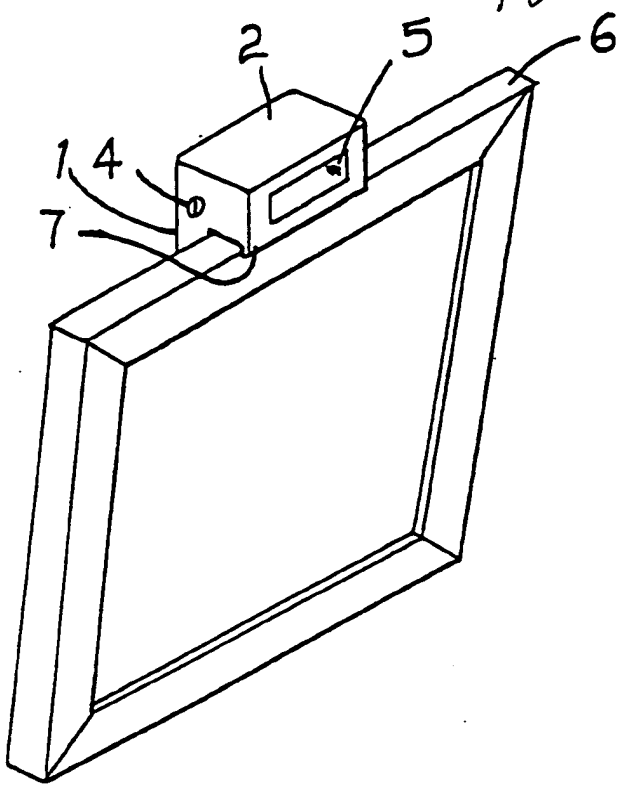

FIG 3

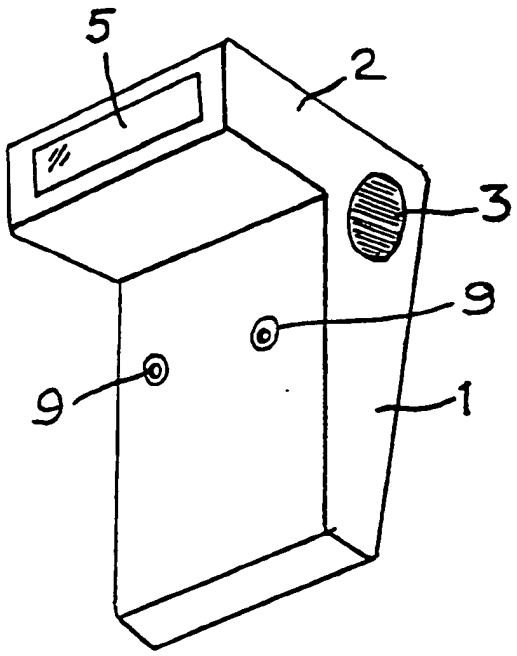

FIG 1

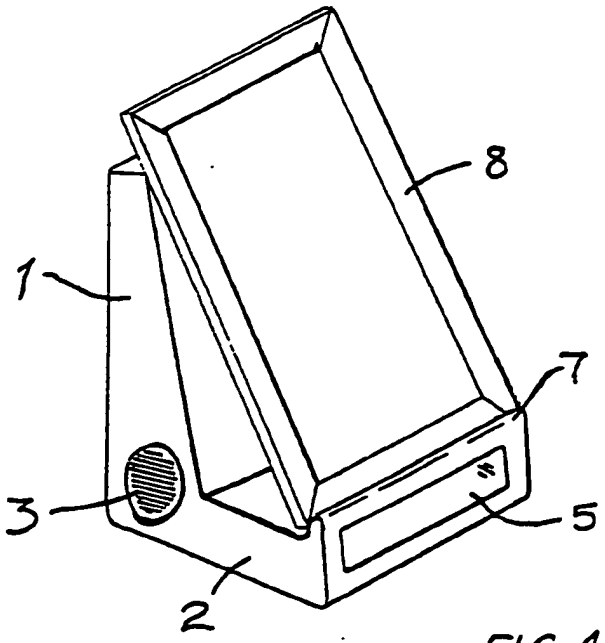

FIG 4

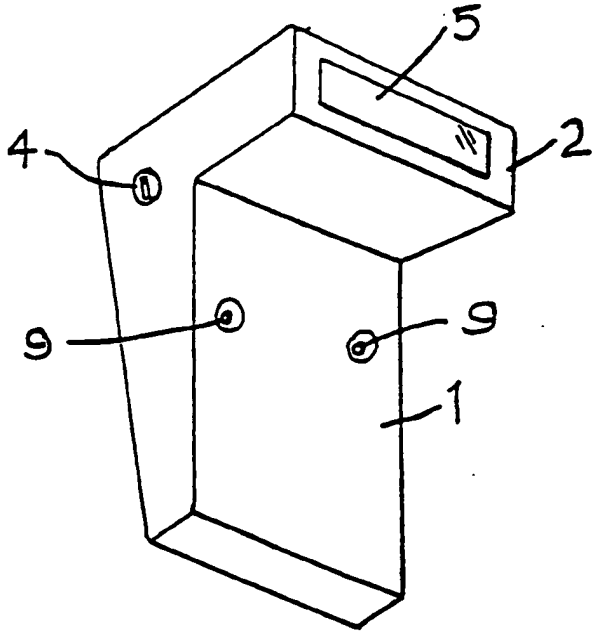

FIG 2

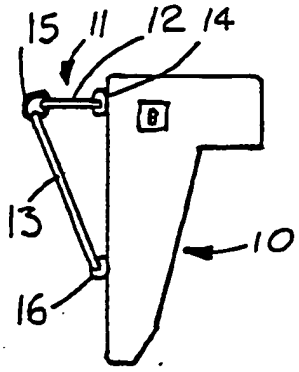

FIG 5

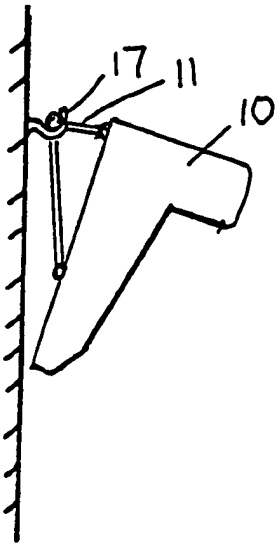

FIG 6

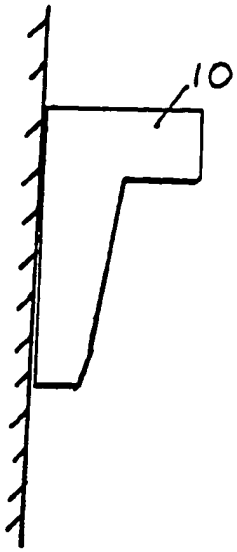

FIG 7

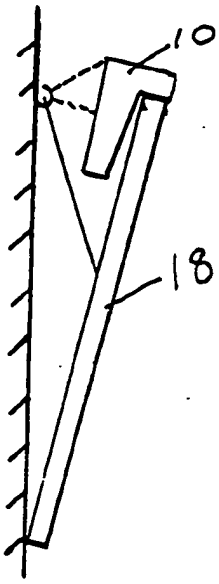

FIG 8

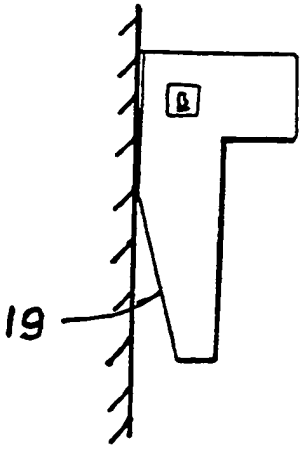

FIG 9

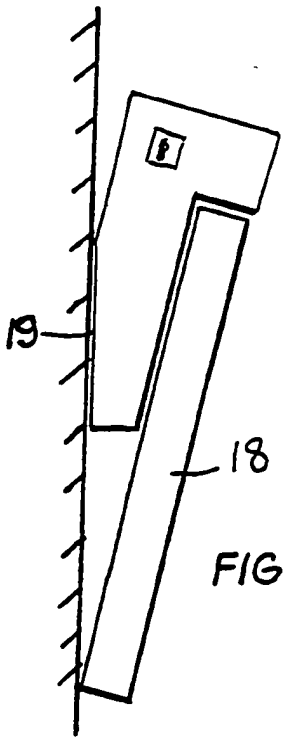

FIG 10

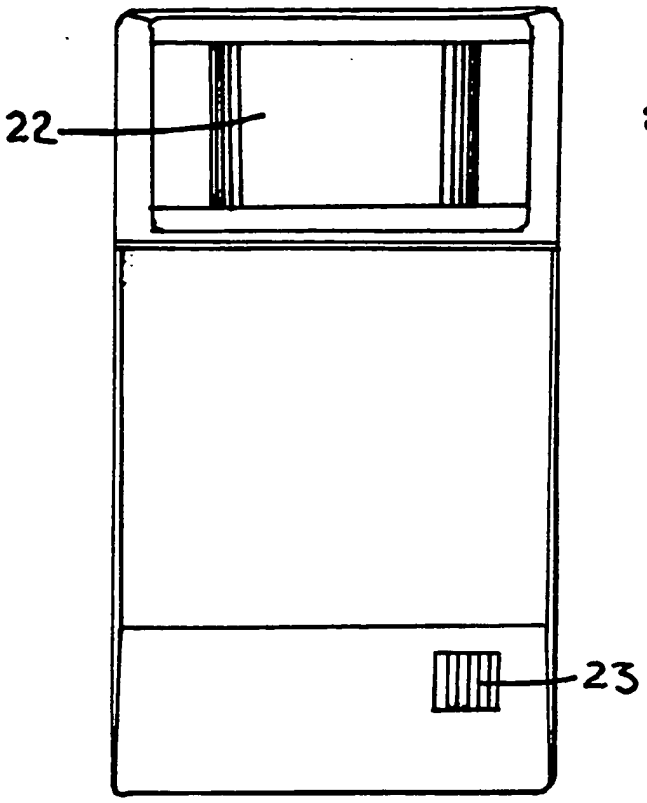

FIG 11

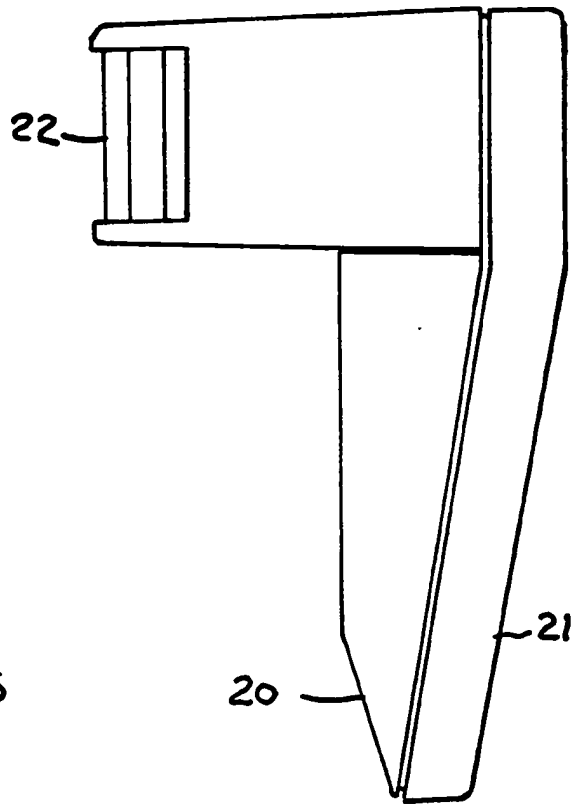

FIG 12

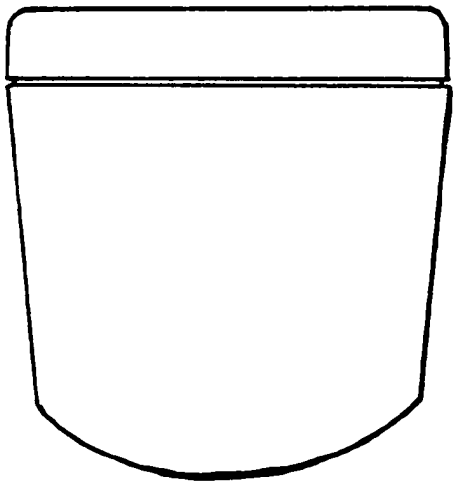

FIG 13

IMPROVEMENTS IN INTRUDER ALARMS

The present invention relates to improvements in intruder alarms. In particular, the invention relates to an intruder alarm which acts as a movement detector.

Known movement detectors include passive infra-red intruder alarms which comprise a portable, battery-operated alarm device, using a passive infra-red detector with a dual element pyro-electric sensor. Such an alarm is able to detect rapid changes in the location of sources of infra-red heat radiation within its range. For example, a typical detection area would be approximately 12 X 12 metres such that a person moving into or out of the detection area will cause the alarm siren to sound. Intruder alarms of this type are usually wall-mounted, and the present invention seeks to provide a more versatile intruder alarm which is less obtrusive than known devices.

According to the present invention there is provided a portable intruder alarm device comprising a movement detector, an audible alarm, means to arm the device, and a DC source to power the device, contained in a housing wherein the housing comprises a slender back portion and a portion extending forwardly therefrom so as to define a ledge adapted to act as a support or stand for, or to rest upon, objects such as a framed picture.

The extension portion of the housing preferably extends substantially perpendicular to the back portion, and most preferably houses the

movement detector. The preferred movement detector is an infra-red movement detector wherein the lens of the detector is housed in the forwardmost face of the extension portion of the housing.

The back portion of the housing preferably contains the remaining components of the device. Screw holes may be provided in the body portion for optionally fixing the alarm device on a wall, for example.

Preferred embodiments of a portable intruder alarm device according to the present invention will now be described in detail with reference to the accompanying drawings, in which,

Figure 1 shows a perspective view from below of an intruder alarm device in accordance with a first embodiment of the invention,

Figure 2 shows a second perspective view from below of the device of Figure 1,

Figure 3 shows the device of Figures 1 and 2 in one mode of use, supported by a hanging picture,

Figure 4 shows the device of Figures 1 and 2 in a second mode of use, as a free-standing device serving the function of a picture stand,

Figures 6 to 8 show a second embodiment of the invention, in side elevation, showing three modes of use,

Figures 9 and 10 show a third embodiment of the invention, in side elevation, showing two modes of use, and

Figures 11, 12 and 13 show front, side, and plan views of a fourth embodiment of the invention.

Referring to Figures 1 and 2 of the drawings, a portable intruder alarm device comprises a housing having a slender back portion 1 and a forwardly-extending portion 2. The housing 1 contains an audible alarm

such as a 100 dB siren located behind speaker grille 3, and 9V or 12V batteries (not shown) to provide a DC power source. Alternatively, a suitable mains power adaptor may be provided. The device is armed by turning a key in keyhole 4 which allows a suitable time delay for the person setting the alarm to leave the room in which it is situated. Similarly, there is a time-lag before the siren sounds if a movement is detected, to give sufficient time for a person to enter the room and disarm the device. An infra-red movement detector having lens 5 is located in the forwardly-extending portion 2 of the housing. The operation of such a detector is well known in the art.

Figure 3 illustrates one mode of use of the intruder alarm device, wherein the device is placed on top of the frame 6 of a picture hanging on a wall. The portion 2 of the housing of the device thus provides a ledge which seats over the top of the frame 6, while the slender back portion 1 of the housing seats against the wall behind the picture. Thus, in this position the device is relatively unobtrusive and located at a suitable height on a wall in the room to be protected. It will be noted that the back portion 1 tapers slightly so as to rest against the back of the picture. A lip 7 may also be provided on the portion 2 of the housing so as to depend over the front of the frame 6. The lip portion 7 may comprise a detachable strip, if desired.

Figure 4 shows an alternative mode of use of the device, wherein the device may be placed, free-standing, on a mantelpiece, bookshelf, cabinet or table top, and used as a stand to support a small picture 8, or framed photograph, for example. The lip 7 in this instance provides a support for the frame 8. If desired, fold-out wings (not shown) may be provided at each side so as to extend the width of the supporting section of the stand for larger sizes of picture frames.

Alternatively, the device may be fixed permanently on a wall by means of screw holes 9 at the desired position on the wall.

It will of course be noted that the lens 5 of the infra-red movement detector is unobstructed in all three modes of use described above.

This is necessary in order not to block the infra-red signal produced when the device is armed.

While the device is suitably armed and disarmed by means of a key-operated switch, a slot could be provided for insertion of a card having metallic contact breaker strips.

Advantageously, the device may be armed by means of a remote control switch, of a type known, per se, for example an infra red or ultrasonic remotely-controlled switch. Thus, if the device has been placed over a picture frame high out of reach, it can be armed without difficulty.

The device may also be operated in two different modes to produce a continuous alarm signal until disarmed (alarm mode), or a short alarm signal which automatically cancels (reception mode). This feature adds to the versatility of the device.

In the reception mode, once the device is armed and ready for use, the alarm is activated for a short time period only when movement is detected or a relay output may be produced to activate a remote signalling device or alarm. The alarm signal is cancelled automatically once the intruder moves out of the target area, or shortly thereafter. For example, the reception mode would have a useful application in a shop where the entrance of a customer would sound an alarm buzzer in the rear of the shop if the shop counter had been left unattended temporarily. As another example, flat or home dwellers could use the device to signal the presence of intruders outside their front door. In this mode, the key is turned to the correct position and may then be removed or left inserted. The device is set for reception as distinct from the alarm mode.

Figure 5 shows a second embodiment of the invention wherein an intruder alarm device 10, similar in construction to the device described above with reference to Figures 1 to 4, including a foldable catch 11 comprising two generally rectangular bent wire portions 12,13 with retaining clips 14 secured to the back of the device, rolled clip 15

providing articulation between wire portions 12,13, and rolled clip 16 acting as a roller bearing between wire portion 13 and the back of the device. Parts 13, 15, 16 may be omitted if desired. The articulated catch 11 may be used to secure the device to a wall-mounted hook 17 (see Figure 6). The catch may be removed and the device secured directly to a wall (see Figure 7), or the device may be supported by the top of a hanging picture 18 (see Figure 8), with the catch 11 being hooked over the picture hook as well, if desired.

Figures 9 and 10 show a third embodiment of the invention in which the back surface of the device includes a chamfer 19, preferably at about 15^{o} to the flat back surface, such that the device fits more snugly behind a hanging picture (see Figure 10).

Figures 11 to 13 show a fourth embodiment of the invention in which both sides of the back portion include a chamfer 20,21. A narrower, more directional, lens 22 is provided in the forwardly-extending portion, and a speaker 23 is provided in the forwardly-facing surface of the back portion, rather than at the side.

CLAIMS

1. A portable intruder alarm device comprising a movement detector, an audible alarm, means to arm the device, and a DC source to power the device, contained in a housing wherein the housing comprises a slender back portion and a portion extending forwardly therefrom so as to define a ledge adapted to act as a support or stand for, or to rest upon, objects such as a framed picture.

2. An intruder alarm device as claimed in Claim 1 wherein extension portion of the housing extends substantially perpendicular to the back portion.

3. An intruder alarm device as claimed in Claim 2 wherein the extension portion houses the movement detector.

4. An intruder alarm device as claimed in any of Claims 1 to 3 in which the movement detector is an infra-red movement detector wherein the lens of the detector is housed in the forwardmost face of the extension portion of the housing.

5. An intruder alarm device as claimed in Claim 4 in which the back portion of the housing contains the remaining components of the device.

6. An intruder alarm device as claimed in any one of the preceding claims in which screw holes are provided in the body portion for optionally fixing the alarm device on a wall.

7. An intruder alarm device as claimed in any one of the preceding claims wherein the means to arm the device comprises a key-operated switch.

8. An intruder alarm device as claimed in any one of Claims 1 to 6 wherein the means to arm the device comprises a remote control switch.

9. An intruder alarm device substantially as described herein with reference to and as shown in any of Figures 1 to 4, or 6 to 8, or 9 and 10, or 11 to 13 of the accompanying drawings.

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